

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-29. (Cancelled)

30. (Previously Presented) A disk drive comprising:

a recording media having one or more recording surfaces;

one or more transducer heads;

an actuator for positioning the transducer heads relative to the recording surfaces,

5 operating within a head position servo loop;

a preamplifier comprising:

one or more head interfaces, each head interface electrically connected to

a transducer head for controlling the transducer head for data read and/or write

operations; and

10 a mode controller electrically connected to each head interface for

controlling the operation of each head interface based on configuration information for

selectively reading data from at least one recording surface via at least one transducer

head while writing final servo patterns to at least another recording surface via at least

one transducer head; and

15 a drive controller for controlling the actuator to position the transducer heads

relative to the recording surfaces, and for providing the configuration information to the

mode controller for selectively reading data from at least one recording surface via at

least one transducer head while writing final servo patterns to at least another recording surface via at least one transducer head.

31. (Cancelled)

32. (Previously Presented) The disk drive of claim 30, wherein the configuration information includes head selection and data transfer mode information.

33. (Cancelled)

34. (Previously Presented) The disk drive of claim 30, wherein the configuration information is a serial word.

35. (Previously Presented) The disk drive of claim 30, wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from a recording surface, and

5 a write circuit for controlling the corresponding transducer head to write data to a recording surface.

36. (Previously Presented) The disk drive of claim 30, wherein the mode controller further controls the operation of the head interfaces based on the configuration

information for writing data to a recording surface via a selected transducer head while reading data from the recording surface via the selected transducer head.

37-39. (Cancelled)

40. (Previously Presented) A data transfer driver for a data storage device including recording media having one or more recording surfaces, and one or more transducer heads positionable relative to the recording surfaces by an actuator operating within a head position servo loop, the data transfer driver comprising:

5 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; and

 a mode controller electrically connected to each head interface for controlling the operation of each head interface for selectively reading data from at least one recording surface while simultaneously writing data to a plurality of recording surfaces.

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41. (Previously Presented) A disk drive comprising:

a recording media having one or more recording surfaces;

one or more transducer heads;

an actuator for positioning the transducer heads relative to the recording surfaces,

5 operating within a head position servo loop;

a preamplifier comprising:

one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; and

10 a mode controller electrically connected to each head interface for controlling the operation of each head interface based on configuration information for selectively reading data from at least one recording surface via at least one transducer head while simultaneously writing data to a plurality of recording surfaces via a plurality of transducer heads; and

15 a drive controller for controlling the actuator to position the transducer heads relative to the recording surfaces, and for providing the configuration information to the mode controller.

42. (Previously Presented) A data transfer driver for a data storage device including recording media having one or more recording surfaces, and one or more transducer heads positionable relative to the recording surfaces by an actuator operating within a head position servo loop, the data transfer driver comprising:

5 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; and

 a mode controller electrically connected to each head interface, wherein the mode controller controls the operation of the head interfaces based on configuration

10 information including:

a read mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data via at least one transducer head;

a write mode, wherein the mode controller controls the operation of the head interfaces for selectively writing data via at least one transducer head;

15 a servo write mode, wherein the mode controller controls the operation of the head interfaces for selectively writing data via a plurality of transducer heads; and

a read-while-write (RWW) mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one
20 recording surface via at least one transducer head.

43. (Previously Presented) A disk drive comprising:

a recording media having one or more recording surfaces;

one or more transducer heads;

an actuator for positioning the transducer heads relative to the recording surfaces,
5 operating within a head position servo loop;

a preamplifier comprising:

one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; and

10 a mode controller electrically connected to each head interface for controlling the operation of each head interface based on configuration information for selectively reading data from at least one recording surface via at least one transducer

head while writing data to at least one recording surface via at least one transducer head;
and

15 a drive controller for controlling the actuator to position the transducer heads
relative to the recording surfaces, and for providing the configuration information to the
preamplifier for selectively reading data from at least one recording surface via at least
one transducer head while writing data to at least one recording surface via at least one
transducer head;

20 wherein the configuration information includes head selection and data transfer
mode information comprising:

 a read mode, wherein the mode controller controls the operation of the
head interfaces for selectively reading data via at least one transducer head;

 a write mode, wherein the mode controller controls the operation of the
25 head interfaces for selectively writing data via at least one transducer head;

 a servo write mode, wherein the mode controller controls the operation of
the head interfaces for selectively writing data via a plurality of transducer heads; and

 a read-while-write (RWW) mode, wherein the mode controller controls
the operation of the head interfaces for selectively reading data from at least one
30 recording surface via at least one transducer head while writing data to at least one
recording surface via at least one transducer head.

44. (Previously Presented) A data transfer driver for a data storage device
including recording media having one or more recording surfaces, and one or more

transducer heads positionable relative to the recording surfaces by an actuator operating within a head position servo loop, the data transfer driver comprising:

5 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; and

 a mode controller electrically connected to each head interface for controlling the operation of each head interface for selectively reading data from at least one recording surface via at least one transducer head while writing data to a plurality of recording surfaces via a plurality of transducer heads.

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45. (Previously Presented) A data transfer driver for a data storage device including recording media having one or more recording surfaces, and a plurality of transducer heads positionable relative to the recording surfaces by an actuator operating within a head position servo loop, the data transfer driver comprising:

5 a plurality of head interfaces, each head interface electrically connected to a corresponding transducer head for controlling that transducer head for data read and/or write operations; and

 a mode controller electrically connected to each head interface for controlling the operation of each head interface based on configuration information for selectively reading data from at least one recording surface while writing data to a plurality of recording surfaces.

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46. (Previously Presented) The data transfer driver of claim 45, wherein the configuration information includes head selection and data transfer mode information.

47. (Previously Presented) The data transfer driver of claim 45, wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from a recording surface; and

5 a write circuit for controlling the corresponding transducer head to write data to a recording surface.

48. (Previously Presented) The data transfer driver of claim 45, wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to a recording surface via a selected transducer head while reading data from the recording surface via the selected transducer head.

49. (Previously Presented) The data transfer driver of claim 45, wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to at least one recording surface via at least one transducer head while reading data from at least one recording surface via at least another transducer
5 head.

50. (Previously Presented) A data transfer driver for a disk drive including one or more magnetic data disks having one or more recording surfaces, and one or more

transducer heads positionable relative to the recording surfaces by an actuator operating within a head position servo loop, the data transfer driver comprising:

5 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; and

 a mode controller electrically connected to each head interface for controlling the operation of each head interface for selectively reading data from at least one recording surface via at least one transducer head for a distance longer than a servo sector while
10 writing data to at least one recording surface via at least one transducer head.

51. (Previously Presented) A disk drive comprising:

one or more data disks having one or more recording surfaces;

 a reference disk having a reference pattern thereon, wherein the reference pattern comprises a servo clock providing transducer head circumferential relative position
5 information, and servo position information providing transducer head radial relative position information;

 one or more transducer heads;

 an actuator for positioning the transducer heads relative to the recording surfaces, operating within a head position servo loop;

10 a preamplifier comprising:

 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; and

a mode controller electrically connected to each head interface for
15 controlling the operation of each head interface based on configuration information for
selectively reading data from at least one recording surface via at least one transducer
head while writing data to at least another recording surface via at least one transducer
head; and
a drive controller for controlling the actuator to position the transducer heads
20 relative to the recording surfaces, for providing the configuration information to the mode
controller for selectively reading data from at least one recording surface via at least one
transducer head while writing data to at least another recording surface via at least one
transducer head, for controlling the actuator and the preamplifier in a servo control loop,
for reading the reference pattern from the reference disk via a transducer head and for
25 using the read servo clock and servo position information to position and maintain one or
more other transducer heads on one or more recording surfaces while writing final servo
patterns onto one or more recording surfaces.

52. (Previously Presented) The disk drive of claim 51, wherein the drive
controller controls the actuator and the preamplifier for:

reading the reference pattern from the reference disk via a transducer head and
using the read servo clock and servo position information to position and maintain one or
5 more other transducer heads on one or more recording surfaces;

while at the same time generating and writing final servo patterns onto one or
more recording surfaces.

53. (Previously Presented) The disk drive of claim 51, wherein the drive controller further comprises:

a pattern generator for generating the final servo patterns for writing to the recording surfaces; and

5 a servo controller for controlling the actuator and the preamplifier in a servo control loop, for reading the reference pattern from the reference disk via a transducer head and for using the read servo clock and servo position information to position and maintain one or more other transducer heads on one or more recording surfaces while writing the final servo patterns onto one or more recording surfaces.

54. (Previously Presented) The disk drive of claim 51, wherein the preamplifier is an integrated circuit.

55. (Previously Presented) The disk drive of claim 51, wherein the preamplifier is an ASIC.

56. (Previously Presented) The disk drive of claim 51, wherein the configuration information is a state signal sent to and stored in the preamplifier.

57. (Previously Presented) The disk drive of claim 51, wherein the configuration information is a serial word sent to and stored in the preamplifier.

58. (Previously Presented) The disk drive of claim 51, wherein the data disks are blank until writing the final servo patterns.

59. (Previously Presented) The disk drive of claim 51, wherein the drive controller provides the configuration information to the mode controller for reading the final servo patterns from a recording surface via a transducer head and to position and maintain one or more other transducer heads on the reference disk while writing final servo patterns onto the reference disk.

60. (Previously Presented) The disk drive of claim 59, wherein the final servo patterns overwrite the reference pattern.

61. (Previously Presented) A disk drive comprising:

first and second disk surfaces;

first and second heads, wherein the first head reads from and writes to the first disk surface, and the second head reads from and writes to the second disk surface; and

5 a preamplifier that controls read and write operations for the heads based on configuration information, wherein the configuration information provides head selection and data transfer mode information that includes (1) a read mode in which each selected head reads from a corresponding disk surface, (2) a write mode in which each selected head writes to a corresponding disk surface, (3) a servo write mode in which each
10 selected head writes final servo patterns to a corresponding disk surface, and (4) a read-

while-write (RWW) mode in which each read selected head reads from a corresponding disk surface while each write selected head writes to a corresponding disk surface.

62. (Previously Presented) The disk drive of claim 61, wherein the disk surfaces are on a single disk.

63. (Previously Presented) The disk drive of claim 61, wherein the disk surfaces are on separate disks.

64. (Previously Presented) The disk drive of claim 61, wherein the preamplifier is an integrated circuit.

65. (Previously Presented) The disk drive of claim 61, wherein the preamplifier is an ASIC.

66. (Previously Presented) The disk drive of claim 61, wherein the configuration information is a state signal sent to and stored in the preamplifier.

67. (Previously Presented) The disk drive of claim 61, wherein the configuration information is a serial word sent to and stored in the preamplifier.

68. (Previously Presented) The disk drive of claim 61, wherein the configuration information selects the RWW mode such that the first head reads longer than a servo sector from the first disk surface while the second head writes to the second disk surface.

69. (Previously Presented) The disk drive of claim 61, wherein the configuration information selects the RWW mode such that the first head reads other than a servo sector from the first disk surface while the second head writes to the second disk surface.

70. (Previously Presented) The disk drive of claim 61, wherein the configuration information selects the RWW mode such that the first head reads a temporary reference pattern from the first disk surface while the second head writes to the second disk surface.

71. (Previously Presented) The disk drive of claim 61, wherein the configuration information selects the servo write mode and the RWW mode such that the disk drive self-servo writes as the first head reads from the first disk surface to position the first and second heads while the second head writes the final servo patterns to the second disk surface.

72. (Previously Presented) The disk drive of claim 71, wherein the first head reads a reference pattern from the first disk surface to position the first and second heads while the second head writes the final servo patterns to the second disk surface.

73. (Previously Presented) The disk drive of claim 72, wherein the reference pattern includes timing and position information.

74. (Previously Presented) The disk drive of claim 72, wherein the reference pattern includes circumferential position information and radial position information.

75. (Previously Presented) The disk drive of claim 72, wherein the reference pattern is a printed media pattern.

76. (Previously Presented) The disk drive of claim 71, wherein the self-servo write is a bank write.

77. (Previously Presented) The disk drive of claim 71, wherein the self-servo write is a stagger write.

78. (Previously Presented) The disk drive of claim 71, wherein the self-servo write provides initial information on the second disk surface.

79. (Previously Presented) The disk drive of claim 71, wherein the configuration information selects the servo write mode and the RWW mode after the second head writes the final servo patterns to the second disk surface such that the disk drive self-servo writes as the second head reads the final servo patterns from the second disk

5 surface to position the first and second heads while the first head writes the final servo patterns to the first disk surface.

80. (Previously Presented) The disk drive of claim 79, wherein the final servo patterns overwrite the reference pattern.

81. (Previously Presented) A disk drive comprising:

first and second disk surfaces;

first and second heads, wherein the first head reads from and writes to the first disk surface, and the second head reads from and writes to the second disk surface;

5 a preamplifier that controls read and write operations for the heads based on configuration information, wherein the configuration information provides head selection and data transfer mode information that includes (1) a read mode in which each selected head reads from a corresponding disk surface, (2) a write mode in which each selected head writes to a corresponding disk surface, and (3) a read-while-write (RWW) mode in
10 which each read selected head reads from a corresponding disk surface while each write selected head writes to a corresponding disk surface; and

a drive controller that sends the configuration information to the preamplifier, wherein the drive controller sets the configuration information to (1) the read mode for read operations, (2) the write mode for write operations, and (3) the RWW mode for self-
15 servo write such that the first head reads a reference pattern from the first disk surface to position the first and second heads while the second head writes final servo patterns to the second disk surface.

82. (Previously Presented) The disk drive of claim 81, wherein the configuration information is a state signal sent to and stored in the preamplifier.

83. (Previously Presented) The disk drive of claim 81, wherein the configuration information is a serial word sent to and stored in the preamplifier.

84. (Previously Presented) The disk drive of claim 81, wherein the reference pattern includes timing and position information.

85. (Previously Presented) The disk drive of claim 81, wherein the reference pattern includes circumferential position information and radial position information.

86. (Previously Presented) The disk drive of claim 81, wherein the reference pattern is a printed media pattern.

87. (Previously Presented) The disk drive of claim 81, wherein the reference pattern is a spin stand written pattern.

88. (Previously Presented) The disk drive of claim 81, wherein the self-servo write provides initial information on the second disk surface.

89. (Previously Presented) The disk drive of claim 81, wherein the drive controller sets the configuration information after the final servo patterns are written to

the second disk surface to RWW mode for self-servo write such that the second head reads the final servo patterns from the second disk surface to position the first and second
5 heads while the first head writes the final servo patterns to the first disk surface.

90. (Previously Presented) The disk drive of claim 89, wherein the final servo patterns overwrite the reference pattern.

91. (Previously Presented) A disk drive comprising:

first and second disk surfaces;

first and second heads, wherein the first head reads from and writes to the first disk surface, and the second head reads from and writes to the second disk surface;

5 a preamplifier that controls read and write operations for the heads based on configuration information, wherein the configuration information provides head selection and data transfer mode information that includes (1) a read mode in which each selected head reads from a corresponding disk surface, (2) a write mode in which each selected head writes to a corresponding disk surface, and (3) a read-while-write (RWW) mode in
10 which each read selected head reads from a corresponding disk surface while each write selected head writes to a corresponding disk surface; and

a drive controller that sends the configuration information to the preamplifier, wherein the drive controller sets the configuration information to (1) the read mode for read operations, (2) the write mode for write operations, and (3) the RWW mode such
15 that the first head reads from the first disk surface for an entire revolution of the first disk

surface while the second head writes to the second disk surface for an entire revolution of the second disk surface.

92. (Previously Presented) The disk drive of claim 91, wherein the configuration information is a state signal sent to and stored in the preamplifier.

93. (Previously Presented) The disk drive of claim 91, wherein the configuration information is a serial word sent to and stored in the preamplifier.

94. (Previously Presented) The disk drive of claim 91, wherein the first head reads longer than a servo sector from the first disk surface while the second head writes to the second disk surface.

95. (Previously Presented) The disk drive of claim 91, wherein the first head reads other than a servo sector from the first disk surface while the second head writes to the second disk surface.

96. (Previously Presented) The disk drive of claim 91, wherein the first head reads from the first disk surface that is devoid of final servo patterns while the second head writes to the second disk surface.

97. (Previously Presented) The disk drive of claim 91, wherein the first head reads from the first disk surface while the second head writes to the second disk surface to provide initial information on the second disk surface.

98. (Previously Presented) The disk drive of claim 91, wherein the first head reads a reference pattern from the first disk surface that provides circumferential position information and radial position information to position the first and second heads while the second head writes to the second disk surface.

99. (Previously Presented) The disk drive of claim 91, wherein the first head reads from the first disk surface while the second head writes final servo patterns to the second disk surface.

100. (Previously Presented) The disk drive of claim 91, wherein the first head reads a reference pattern from the first disk surface that provides circumferential position information and radial position information to position the first and second heads while the second head writes final servo patterns to the second disk surface.